The Office Action rejected claims 1-15 under 35 U.S.C. §101 on grounds that the claimed invention is directed to non-statutory subject matter. Applicant respectfully traverses this rejection.

The patent statute enumerates several classes of inventions that may be patented. Section 101 provides that:

"Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title."

The subject patent application claims methods or processes for generating and storing data. Moreover these processes are performed by a machine (a data processing system). The data are expressed and processed as electrical signals operated upon by a processing apparatus. That is a practical application of the invention.

The United States Court of Appeals for the Federal Circuit (hereafter called "the Federal Circuit") has noted that the repetitive use of the expansive term "any" in § 101 shows Congress's intent not to place any restrictions on the subject matter for which a patent may be obtained beyond those specifically recited in §101. State Street Bank &Trust Co. v. Signature Fin. Group, 149 F.3d 1368, 47 USPQ2d 1596 (Fed. Cir. 1998), cert. denied, 119 S. Ct. 851 (1999). Moreover, the Supreme Court has acknowledged that Congress intended §101 to extend to "anything under the sun that is made by man." Diamond v. Chakrabarty, 447 U.S. 303, 309 (1980); see also Diamond v. Diehr, 450 U.S. 175, 182 (1981). Thus, it is improper to read limitations into §101 on the subject matter that may be patented where the legislative history indicates that Congress clearly did not intend such limitations. See Chakrabarty, 447 U.S. at 308 ("The Federal Circuit has also cautioned that courts 'should not read into the patent laws limitations and conditions which the legislature has not expressed.'" (citations omitted)). State Street Bank & Trust Co. v. Signature Fin. Group, supra.

Applicants do not claim an abstract concept that is independent of the means for carrying out the claimed processes. The application of the claimed invention is clearly stated as the generation

and storage in a tangible medium such as a database residing in a memory. Therefore, the claimed invention is patentable subject matter.

III. CLAIM REJECTIONS UNDER 35 U.S.C. § 112

The Office Action rejected claims 1-15, under 35 U.S.C. § 112, second paragraph, as indefinite. First, the Office Action states that the preamble lacks clarity in that it is unclear whether the claim covers a method or a data processing system. Applicant respectfully traverses this rejection and points out that the preamble clearly recites a method and the reference to a data processing system merely sets forth a setting or purpose for the claimed method.

Claims 2 and 3 have been cancelled, thus rendering their rejection as moot. Claims 4 and 5 are amended to correct formal matters such as lack of antecedent.

IV. CLAIM REJECTIONS UNDER 35 U.S.C. §102(b)

Claims 1 and 2 were rejected under 35 U.S.C. § 102(b) as being anticipated by Platt (US Pat. No. 5,784,294). This rejection is overcome because it is believed that neither claim 1 nor its dependent claims, as amended, are anticipated by Platt. Nowhere does Platt teach or disclose any of the elements of claim 1. Platt relates to a storage device that performs a plurality of functions that produce an input to the method of claim 1. Platt does not disclose the required mapping, generation of a key, or string the entry as required by claim 1.

Claim 1 was amended to make the claim clearer but the additions to the claim represent attributes inherent to the invention that do not further limit the claim. Claim 1 was amended to state the input information received. A further modification of the claim states that the mapping is applied such that the descriptor vector is associated with the entry region based on predetermined criteria. Support for this is found at page 40, line 21 of the specification. Claim 1 was further amended to shown that the entry in a memory, wherein said key is associated with said entry such that the key indexes the entry for retrieval thereof. Support is found at page 40, lines 21-26. The rejection of

claim 1 is thus overcome. The claims dependent on claim 1 are not anticipated for the same reasons that claim 1 is not anticipated.

V. Specification Objection Pursuant to MPEP § 608.01

Applicants have deleted the embedded hyperlink on page 16, line 9, therefore the objection to the specification is overcome.

VI. Objection to Title as non-descriptive

The title of this invention is "Similarity Searching of Molecules Based Upon Descriptor Vectors Characterizing Molecular Regions," as shown in Applicants' patent application filed on March 24, 1999. The title "Electronic Device" shown in the caption of the Amendment dated November 2, 2001 was submitted in error.

VII. Conclusion

It is believed that the present amendment overcomes the Examiner's objections. For the foregoing reasons and amendments, the application is now believed to be allowable.

Attached hereto is a marked-up version of the changes made to the specification and claims by the current amendment. The attached page is captioned **"Version with markings to show changes made."**

Applicants respectfully request that a timely Notice of Allowance be issued in this case. The Examiner is invited to telephone the undersigned attorney at the number appearing below to discuss any issue remaining unresolved to the Examiner's full satisfaction.

Respectfully submitted,

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Version with markings to show changes made:

In the specification:

Please replace the paragraph beginning at page 1, line 6 with the following re-written paragraph:

--The present application claims priority to Provisional U.S. Patent Application No. [06/079,196] 60/079,196, and is related to U.S. [Patent Applications] Patents 6,408,321 issued June 18, 2002 (Attorney Docket YO999-149) and 6,349,265 issued February 19, 2002 (Attorney Docket No. YO999-150), herein incorporated by reference in their entirety.--

Please replace the paragraph beginning at page 1, line 6 with the following re-written paragraph:

-- In order to illustrate this example in more detail, consider the case where the genotypes are a population of male patients partitioned into two groups (A,B) based upon prostate cancer activity experienced by the patients (i.e., patients belonging to group A have not experienced any prostate cancer activity, and patients belonging to group B have experienced prostate cancer activity). In addition, the descriptor vector associated with each male patient is expression data acquired from a gene probe array system, such as the GeneChipsystems developed by Affymetrix, Inc. [(information is available at http://www.affymetrix.com/products/)]. In addition, a candidate and associated descriptor vector has been identified. Again, the descriptor vector associated with the candidate is expression data acquired from a gene probe array system, and one wishes to ascertain to which group the candidate belongs. The method discussed above may be used to provide a suggestion as to which group the candidate belongs. More specifically, the method described above is used to map the descriptor vector for each patient to a space that optimally discriminates between groups. In addition, the statistical mean of the mapped descriptor vectors for each group (or some other statistical variable, such as the covariance about the mean, based upon the mapped descriptor vectors) is calculated. In addition, the same mapping function is applied to the descriptor vector for the candidate. Finally, a suggestion as to which group the candidate belongs is determined based upon differences between the mapped descriptor vector for the candidate and the statistical mean of the mapped descriptor vectors for the groups A, B.--

In the claims:

Please amend the claims to read as follows:

1. (Amended) In a data processing system wherein descriptor vectors associated with a plurality of regions of molecules are stored in a database, a method for generating and storing data characterizing at least one region of said plurality of regions, the method comprising the steps of:

generating an entry comprising i) an identifier that identifies said at least one region, and ii) data characterizing a set of axes derived from a property distribution of said at least one region;

applying a mapping to the descriptor vector associated with said at least one region based on preselected criteria;

generating a key that corresponds to said mapping of the descriptor vector associated with said at least one region; and

storing said entry in a memory, wherein said key is associated with said entry such that the key indexes the entry for retrieval thereof..

2. (Cancelled) The method of claim 1, wherein said set of axes are invariant to rotation and translation of said at least one region.

3. (Cancelled) The method of claim 2, wherein said set of axes are derived from principal axes of said property distribution.

4. (Amended) The method of claim [3]1, wherein said property distribution of said at least one region is [based upon application of a smearing] computed from a convolution with a probe function to a property field.

5. (Amended) The method of claim 1, wherein said plurality of descriptor vectors are classified into groups, and wherein said mapping step maps said descriptor vectors to a [said] space [optimally discriminates] discriminating between said groups of descriptor vectors.